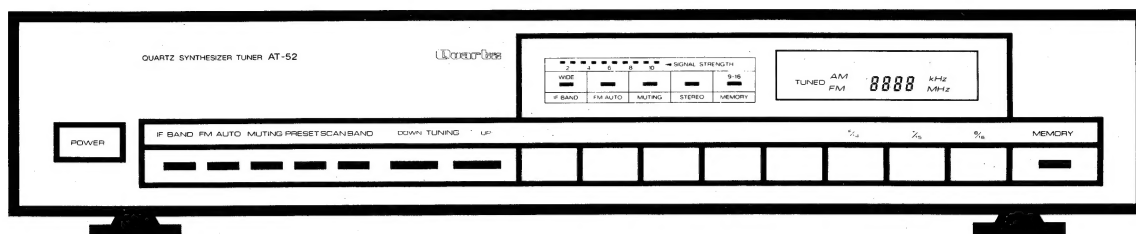


# AKAI SERVICE MANUAL



## QUARTZ SYNTHESIZER TUNER

## MODEL AT-52/L

## SPECIFICATIONS

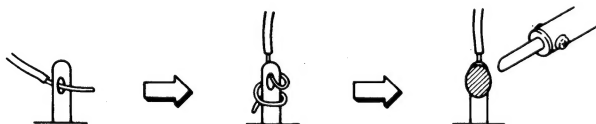
FM Tuner section		AM tuner section (MW & LW for AT-52L)	
Tuning frequency range .....	87.5 MHz to 108.0 MHz	AM tuner Section (MW for AT-52L)	LW tuner Section (for AT-52L)
Usable sensitivity .....	11.2 dBf	Tuning frequency range .....	531kHz to 1,602 kHz
Quieting sensitivity (S/N = 50 dB) .....	16.2 dBf (Mono)/37.2 dBf (Stereo)	Usable sensitivity (Loop antenna) .....	400 $\mu$ V/m
Capture ratio .....	1.5 dB	Selectivity .....	50 dB
Selectivity		Image rejection .....	40 dB
Narrow .....	90 dB	IF rejection .....	30 dB
Wide .....	60 dB	S/N .....	40 dB
Image rejection .....	78 dB	T.H.D. ....	1.0%
IF rejection ratio .....	85 dB	Output level	
Spurious rejection .....	90 dB	FM .....	700 mV (100% Mod.)
AM suppression .....	60 dB	AM	
Sub carrier suppression .....	60 dB	(MW for AT-52L) ...	250 mV (30% mod.)
S/N (IHF) .....	75 dB (Mono)/65 dB (Stereo)	Power requirements .....	220V, 50 Hz for Europe
T.H.D. (1 kHz)		Except UK	240V, 50 Hz for UK
Narrow .....	0.15% (Mono)/0.35% (Stereo)	110 - 120V/220 - 240V,	50/60 Hz convertible for other countries
Wide .....	0.08% (Mono)/0.20% (Stereo)	Dimensions .....	425(W) $\times$ 85(H) $\times$ 335(D) mm
Stereo separation (1 kHz)		(16.7 $\times$ 3.4 $\times$ 13.2 inches)	
Narrow .....	45 dB	Weight .....	4.0 kg (8.8 lbs)
Wide .....	50 dB		
Frequency response .....	30 Hz to 15 kHz $\pm$ 1.0 dB		

\* For improvement purposes, specifications and design are subject to change without notice.

# ★ SAFETY INSTRUCTIONS

## PRECAUTIONS DURING SERVICING

1. Parts identified by the  $\triangle$  symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulation Tape
  - 2) PVC tubing
  - 3) Spacers (Insulating Barriers)
  - 4) Insulation sheets for transistors
  - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for  $\square C$  or  $\square A$ , specified insulation resistance should be headphone jacks, line-in-out jacks, etc. more than 2.2 M ohms (ground terminals, microphone jacks).

## PRECAUTION FOR THE LITHIUM BATTERY

The lithium battery may explode when heated excessively. [OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type only.
- Use soldering iron in "recommended way" only.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not recharge battery.
- Do not dispose of battery in fire.



[DANGER]



[RECOMMENDED WAY]

# ★ INFORMATION

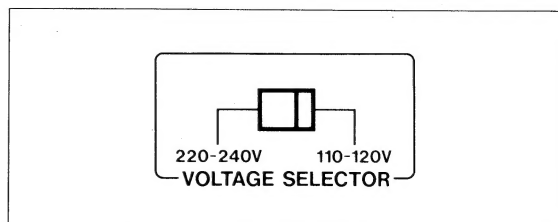
## SYMBOL FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
$\square A$	USA
$\square B$	UK
$\square C$	Canada
$\square E$	Europe (except UK)
$\square J$	Japan
$\square S$	Australia
$\square V$	W. Germany only
$\square U$	Universal Area
$\square Y^*$	Custom version

## VOLTAGE CONVERSION ( $\square U$ Model only)

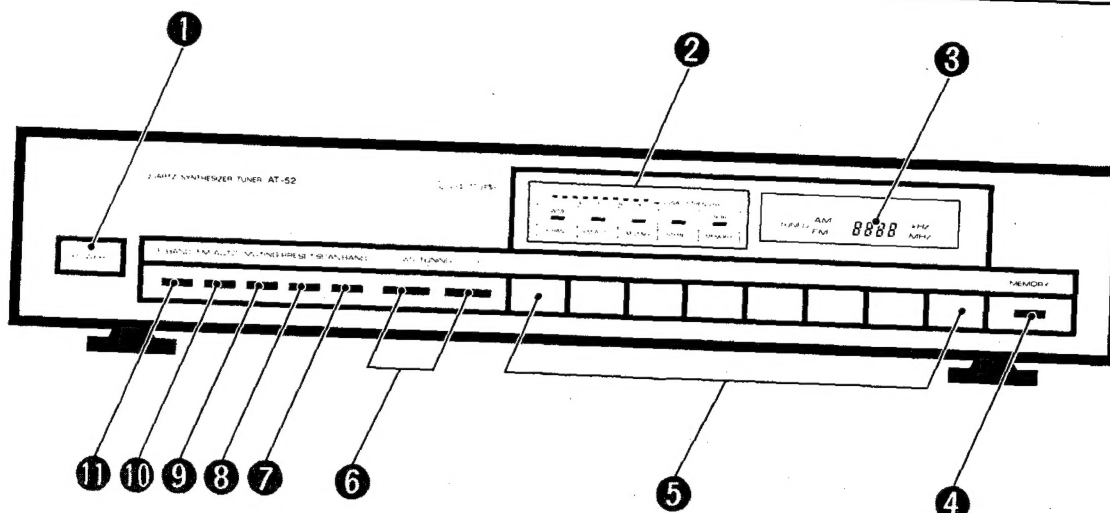
Before connecting the power cord, SET the VOLTAGE SELECTOR located on the rear panel with a screwdriver so that the correct voltage is indicated.



## ABBREVIATIONS (TUNER)

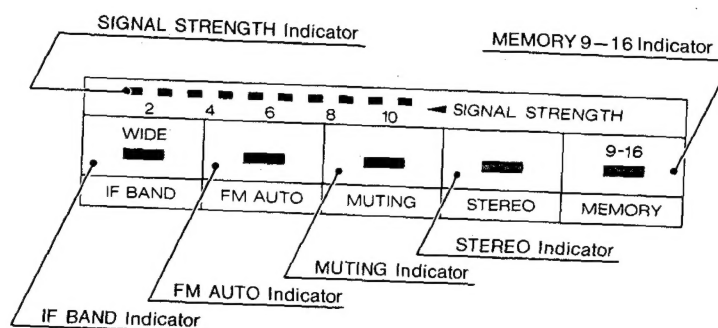
Abbreviation	Explanation	Abbreviation	Explanation
AFC	Auto Frequency Control	MEMO	MEMOry
AGC	Auto Gain Control	MI-COM	MIcro-COMputer
ALC	Auto Level Control	MIN	MINimum
AM	Amplitude Modulation	MIX	MIXing
AMP	AMPlifier	MPX	Multi PleX
ANT	ANTenna	MW	Medium Wave (frequency)
BATT	BATTery	NC	No Connection
BLK	BLock	NFB	Negative Feed Back
BUFF	BUFFer	OSC	OSCillator
COMP	COMParator	PCB	Printed Circuit Board
DET	DETECT (DETctor)	PLL	Phase Locked Loop
FLD		Q.D	Quadrature Detector
FM	Frequency Modulation	Rch	Right channel
FREQ	FREQuency	REF	REFErence
GND	GrouND	REG	REGulator
H	High	RF	Radio Frequency
HPF	High Pass Filter	SEG	SEGment
IF	Intermediate Frequency	SELE	SELEctor
IHF	Institut of High Fidelity	SENS	SENSitivity
IND	INDicator	SIG	SIGnal
I/O	In/Out	S/N	Signal to Noise Ratio
JW	Jumper Wire	SSG	Standard Signal Generator
L	Low	STD	STanDard
LCD	Liquid Crystal Display	SW	SWitch : Short Wave (frequency)
Lch	Left channel	THD	Total Harmonic Distortion
LED	Light Emitining Diode	TP	Test Point
LPF	Low Pass Filter	VCO	Voltage Controlled Oscillator
LW	Long Wave (Frequency)	VR	Variable Resistor
		X'TAL	Crystal

# I. CONTROLS



- 1 POWER Switch**  
To turn the power on and off.
- 2 LED (Light Emitting Diode) Indicators**  
Tells you which mode the tuner is in.
- 3 FL (Fluorescent) Display**  
Shows tuning information.
- 4 MEMORY button**  
To memorize preset stations. Press the button once to preset station numbers 1 to 8. Press the button twice to preset station numbers 9 to 16.
- 5 Preset Station Buttons (1 to 16)**  
To memorize preset stations and tune in memorized stations.
- 6 TUNING Control buttons (UP/DOWN)**  
To tune in a station manually.
- 7 BAND Button**  
To select the band.
- 8 PRESET SCAN Button**  
To select the preset scanning mode of the tuner.
- 9 MUTING button**  
To cut interstation noise during FM station tuning.
- 10 FM AUTO button**  
To select FM AUTO or monoaural mode.
- 11 IF BAND Select button**  
To select the wide or narrow FM IF (Intermediate Frequency) band.

## LED Indicators



**SIGNAL STRENGTH Indicators**  
Tells you the strength of the tuned in station's signal.

**WIDE Indicator**  
Tells you the IF band of the tuner is set to WIDE.

**MUTING Indicator**  
Tells you the muting system is engaged.

**STEREO Indicator**  
Tells you the received FM broadcast program is in the stereo mode.

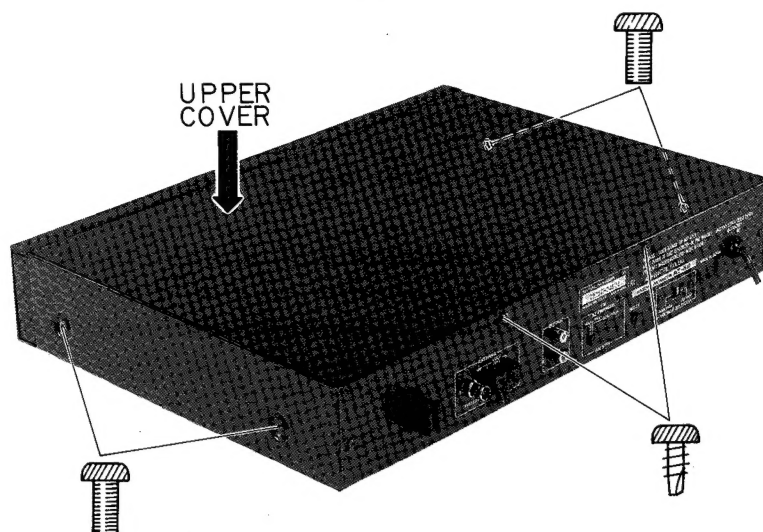
**MEMORY 9-16 Indicator**  
Tells you the preset station number is between 9 and 16.



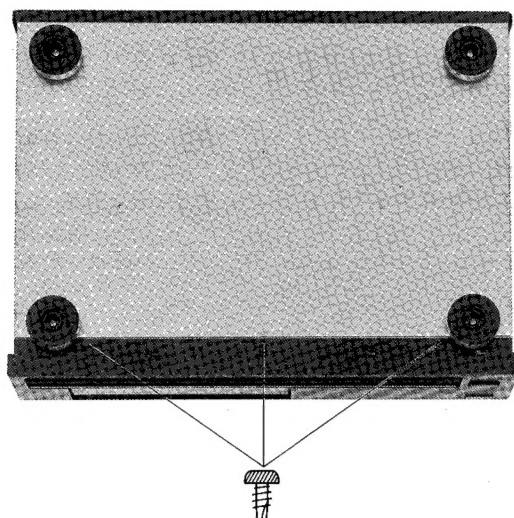
## II. DISASSEMBLY

In case of trouble, etc, necessitating dismantling, please dismantle in the order shown in the photographs.  
Reassemble in reverse order.

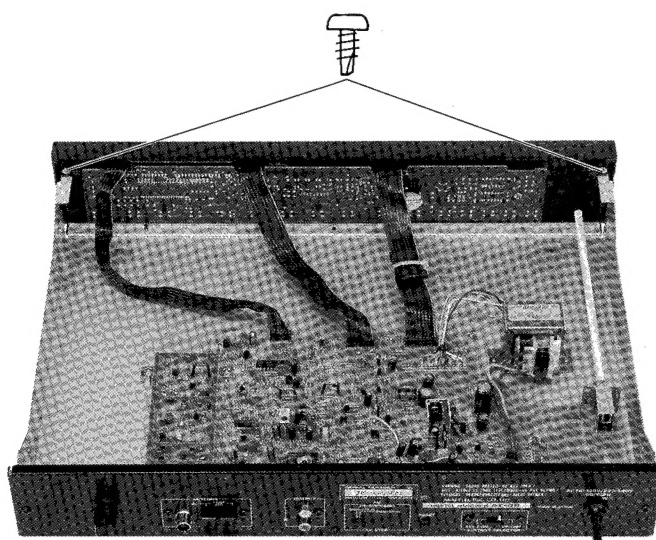
### 1. REMOVAL OF UPPER COVER



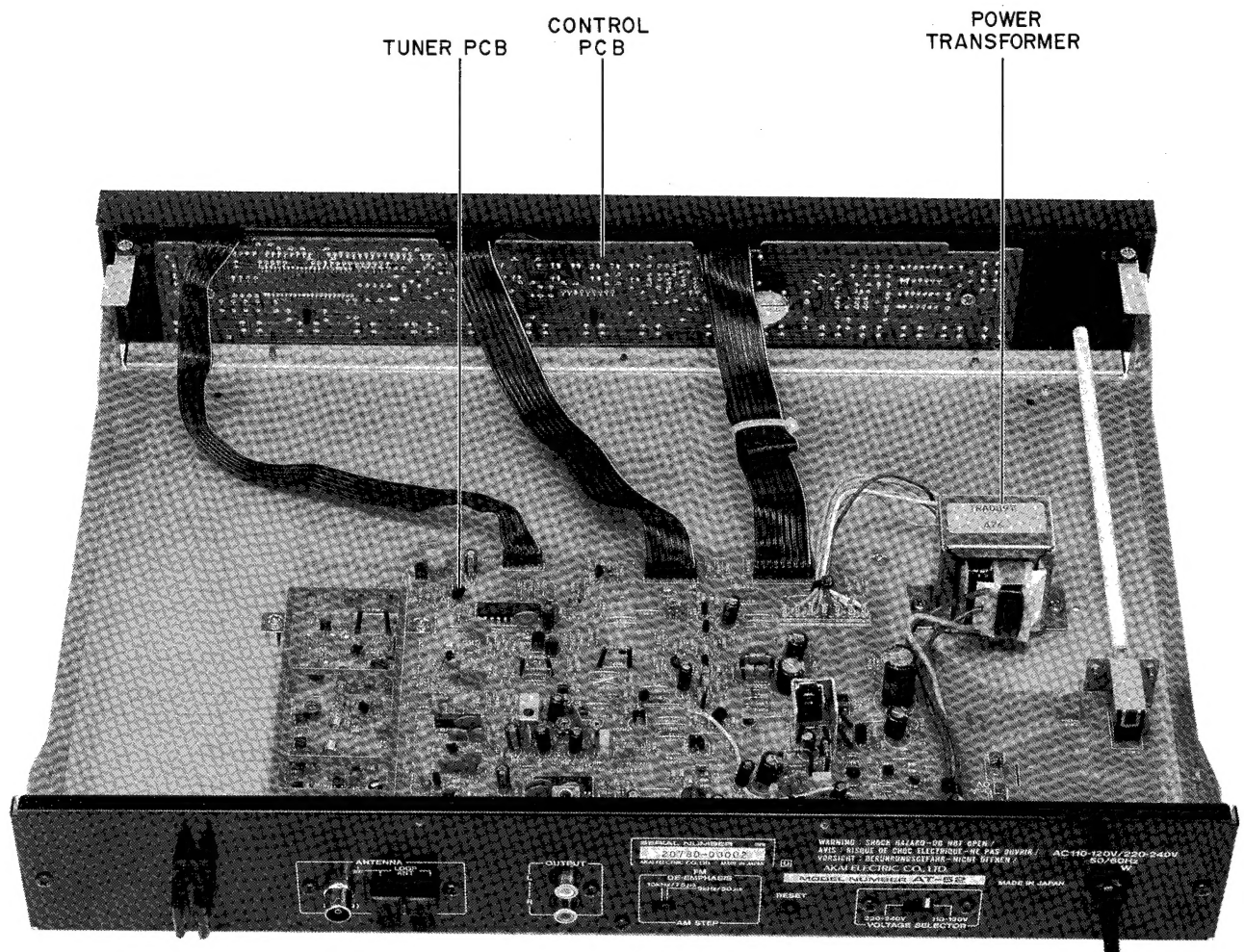
### 2. REMOVAL OF FRONT PANEL



3.



### III. PRINCIPAL PARTS LOCATION



## IV. ADJUSTMENT

### 4-1. INSTRUMENT CONNECTIONS

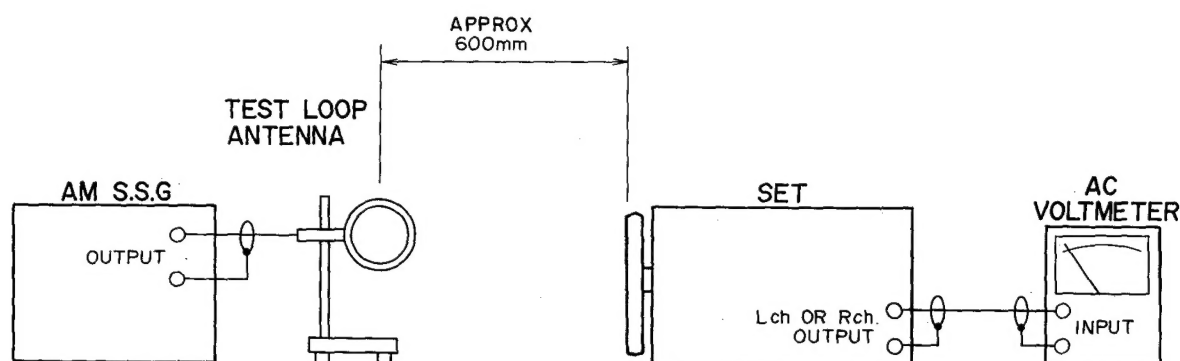


Fig. 4-1 Instrument Connection of AM Adjustment

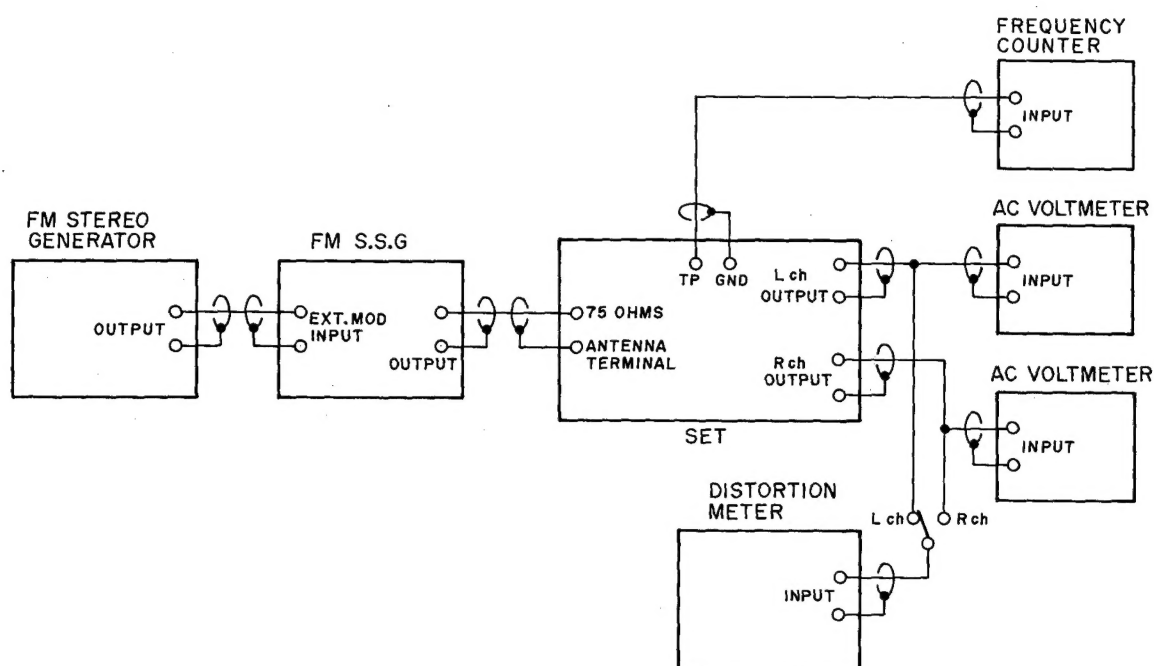


Fig. 4-2 Instrument Connection of FM Adjustment

### 4-2. HOW TO CALL THE PRESET FREQUENCY FOR THE ADJUSTMENT

Press the RESET SW on the REAR PANEL. The internal frequency preset memory is set as below.

	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
AT-52 <b>[U]</b> (10 kHz step)	AM 600 kHz	AM 1000 kHz	AM 1400 kHz	AM 1610 kHz	FM 90.0 MHz	FM 98.0 MHz	FM 106.0 MHz	FM 108.0 MHz
AT-52 <b>[E]</b> <b>[V]</b> (9 kHz step)	AM 603 kHz	AM 999 kHz	AM 1404 kHz	AM 1602 kHz				
AT-52L <b>[E]</b> <b>[B]</b> (9 kHz step)								

CH9	CH10	CH11	CH12	CH13	CH14	CH15	CH16
FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz	FM 87.5 MHz
	AM 160 kHz	AM 200 kHz	AM 300 kHz				

# 4-3. ADJUSTMENT

NOTE: 1. Set the S.S.G to 1 kHz, 75 kHz deviation for [U] model, 1 kHz 40 kHz deviation for [B], [E] or [V] model.  
2. Set the MUTE SW to OFF and IF Band SW to WIDE without notice.  
3. Confirm that the sensitivity margin between Low and High range sensitivity is within 3 dB, otherwise readjust Low and High range sensitivity.

STEP	ADJUSTMENT ITEM
1.	SSG FREQ. & OUTPUT LEVEL
2.	SET Tuning FREQ.
3.	Test Point & ADJ. Part
4.	Result & Remarks

Adjustment Part  
Test Point

## AM

NOTE: 1. Set the S.S.G to 1 kHz 30% modulation of each.

3	AM IF
1.	999 kHz < 1000 kHz > 74 dBμ
3.	Connect a millivolt meter to OUTPUT.
4.	Maximum output level.

1	AM (MW) OSC
1.	—
2.	1404 kHz < 1400 kHz >
3.	Connect a Digital DC Voltmeter to JW 5.
4.	6.75 ± 0.10V

1	AM (LW) OSC
1.	—
2.	351 kHz
3.	Connect a Digital DC Voltmeter to JW 5.
4.	8.25 ± 0.10V

2	AM(MW) SENSITIVITY
1.	603 kHz < 600 kHz >, 70 dBμ (LOW) or 1404 kHz < 1400 kHz >, 70 dBμ (High)
2.	603 kHz < 600 kHz > (Low)
3.	Connect a millivolt meter to OUTPUT.
4.	Maximum output level.

2	AM (LW) SENSITIVITY
1.	160 kHz, 70 dBμ (LOW) or 300 kHz, 70 dBμ (High)
2.	160 kHz (Low) or 300 kHz (High)
3.	Connect a millivolt meter to OUTPUT.
4.	Maximum output level.

2	FM SENSITIVITY
1.	87.5 MHz, 10 dBμ (LOW)
2.	87.5 kHz (Low), 108 kHz (High)
3.	Connect a millivolt meter to OUTPUT.
4.	Minimum distortion

1	FM OSC
1.	—
2.	108 kHz
4.	Connect a digital DC Voltmeter to JW5, L7

4	AM SIGNAL INDICATOR
1.	999 kHz < 1000 kHz > 68 dBμ
3.	Signal Indicator on the Front panel.
4.	Light the final LED at 68 dBμ input.

8	FM MPX SEPARATION
1.	98 MHz, 60 dBμ Stereo (L or R only)
3.	Connect a millivolt meter to OUTPUT.
4.	Minimum output level for other channel

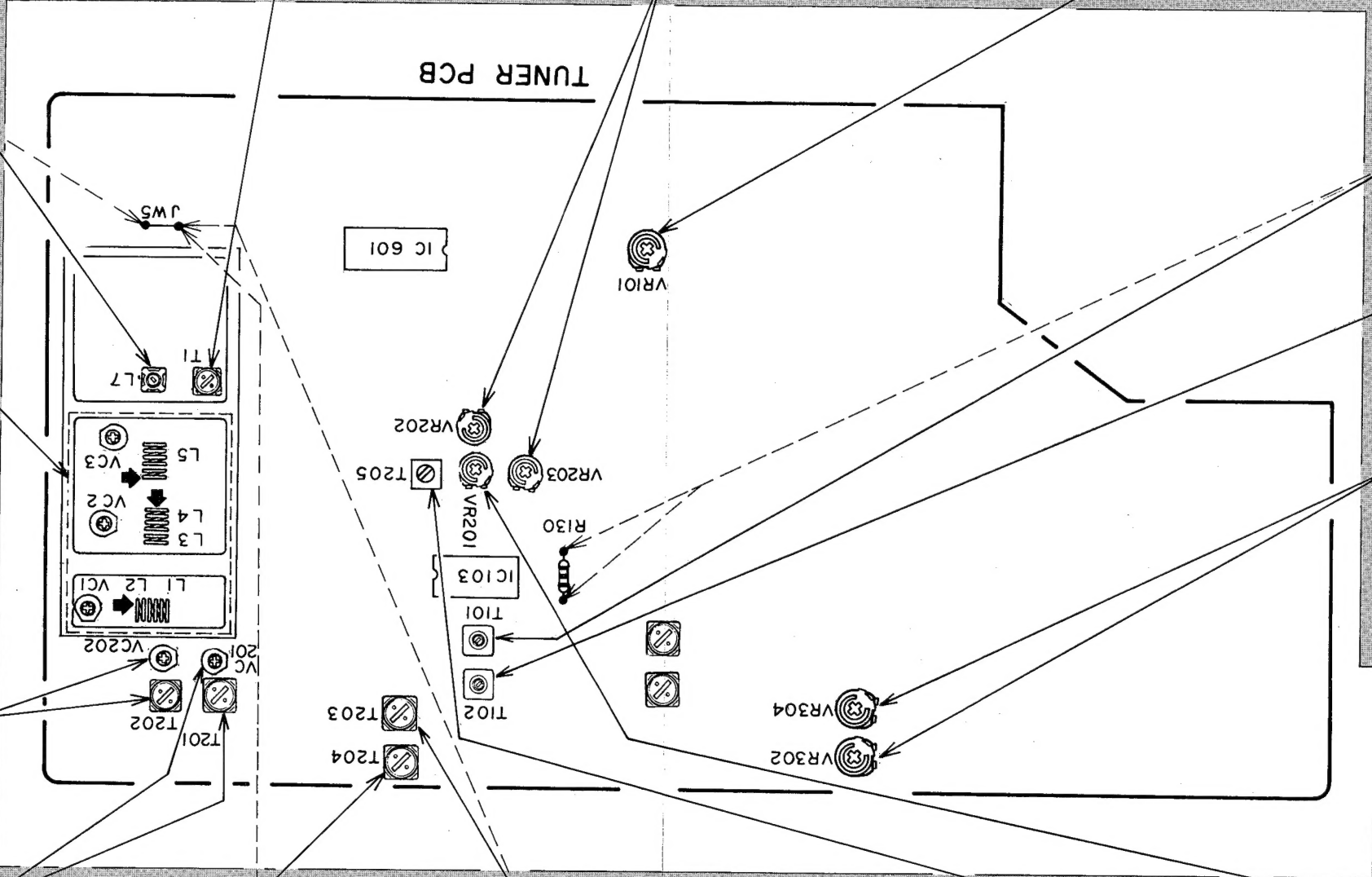
5	FM DISTORTION FACTOR
1.	87.5 MHz, 60 dBμ
2.	87.5 MHz
3.	Connect a Distortion meter to OUTPUT.
4.	Minimum distortion.

4	FM CENTER VOLTAGE
1.	87.5 MHz, 60 dBμ
2.	87.5 MHz
3.	Connect a DC Voltmeter between both end of R130
4.	0 ± 10 mV

7	FM SIGNAL INDICATOR
1.	98 MHz, 40 dBμ
2.	98 MHz
3.	Signal Indicator on the Front Panel.
4.	Light the final LED at 40 dBμ input.

6	FM MUTING LEVEL
1.	98 MHz, 27 dBμ
2.	98 MHz
3.	Connect a millivolt meter to OUTPUT.
4.	Signal disappeared at 27 dBμ

3	FM DISTORTION (STEREO)
1.	87.5 MHz, 60 dBμ (stereo)
3.	Connect a distortion meter to OUTPUT.
4.	Minimum distortion





## V. PARTS LIST

# ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
  2. Please make sure that Part No. is correct when ordering.
  3. If not, a part different from the one you ordered may be delivered.
- Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

## 2. HEAD BASE BLOCK

These reference symbols correspond with

SP (Service Parts) Classification

[J]: JPN(Japan)  
[E]: CEE(Europe) [Y]: Custom Version  
[C]: CSA(Canada) [V]: VDE(W. Germany)  
[B]: BEAB(England) [U]: U/T(Universal Area)  
[A]: AAL(U.S.A.) [S]: SAA(Australia)

Symbols for primary destination

OSC X TAL NC-18C  
C MMY V 223M 125AC [C,A]  
C MMY V 223M 250DC [J]  
C MMY V 223M 250AC [U,E,B,S]  
IC MB8841-564M  
IC HD14049BP  
IC HD1324536  
EI-336801  
EC-338399  
C MMY V 223M 250AC [U,E,B,S]  
EC-350949  
EC-338397  
EI-318384

REF. NO.

PART NO.

DESCRIPTION

SP (Service Parts) Classification

6-1C1  
6-1C2  
6-C1A  
6-C1B  
6-C1C  
6-X1

HEAD BASE BLOCK  
HEAD R/P PR4-8FU C  
PAN20X03STL CMT  
BD120X08STL CMT  
SP CS ANGLE ADJUST

BH-T2023A320A  
HP-H2206A010A  
ZS-477876  
ZS-536488  
ZG-402895

REF. NO.

PART NO.

DESCRIPTION

SP (Service Parts) Classification

A small "X" indicates that this part is not shown in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure.

This number corresponds with the Figure

Number.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

## WARNING

△ (\*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

## AVERTISSEMENT

Δ(\*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.

## 1. RECOMMENDED SPARE PARTS

Ref. No.	Part No.	Description
1	*BT-721687J	TRANS POWER AT-52 (U)
2	*BT-721685J	[T901] TRANS POWER AT-52/L (B)
3	*BT-721684J	[B] [T901] TRANS POWER AT-52/L (E.V)
4	ED-721694J	[E.V] [T901] LED MP6576X GRN
5	*ED-345655	LED P856245 RED
6	*ED-345754	D SILICON DS135D 200/1.0A
7	*ED-345754	D SILICON DS135D 200/1.0A
8	ED-301911	D SILICON H DS448
9	ED-344280	D SILICON H GMA-01-FY2 F05
10	ED-371782	D SILICON H 1S2186
11	ED-363692-A	D VARACTOR SVC321SPA C,D,B,E
12	ED-712926	D ZENER H GZA12 X
13	*ED-715992	D ZENER H GZA15 Y
14	ED-721696J	D ZENER H GZA22 X
15	ED-721696J	D ZENER H GZA22 X
16	ED-721696J	D ZENER H GZA22 X
17	ED-712000	D ZENER H GZA5.1 X
18	ED-708046	D ZENER H GZA5.1 Y
19	ED-712928	D ZENER H GZA5.6 X
20	ED-712927	D ZENER H GZA9.1 X
21	*EF-359342	FUSE BET T 250V 400MA
22	*EF-308933	[B.E.V] FUSE TSC A 250V 200MA
23	EH-344434	[U] FILTER CE BFU450C4N 0.450MHZ
24	EH-315407	FILTER CE SFE10.7MHKA 10.7MHZ
25	EH-706132	FILTER CE SFZ450A
26	EH-721705J	FILTER LP 42B-10B3-03
27	EH-721706J	FILTER LP 42B5200-05
28	EH-368818	IC A3048-714 AKAI COSTOM
29	EH-337964	IC BA401
30	EH-366457	IC BU4013B
31	EH-719341	IC LA1266
32	EH-349963	IC LA3410
33	EH-345551	IC LB1403
34	EH-354951	IC LM7000N
35	EH-348405	OSC CE CSB400P 0.400000MHZ
36	EH-349970	OSC CE CSB456F11 0.456MHZ
37	EH-344422	OSC X TAL HC-18/U 7.200MHZ
38	EM-353670	NMD FL 8-BT-292K CHARACTER
39	*ES-337902	SW PUSH SPLD1P 01-1
40	*ES-349464	[POWER] SW SLIDE 00120319 01-2
41	ES-344439	[U] [VOLTAGE SELECTOR] SW SLIDE 00420451 2-04-02
42	ES-349367	[U] [DE-EMPHA/AM-STEP] SW TACT SKHAAK003A
43	ES-721688J	SW TACT SKHHLQ
44	ET-363326	[RESET] TR FET ZSK161 GR
45	ET-349449	TR FET ZSK161 O.Y
46	ET-337759	TR FET ZSK476 GR
47	ET-337743	TR FET ZSK107 E.F AKAI
48	ET-353899	[U] TR ZSA1317 S.T.U
49	ET-349718	TR ZSA1392 S.T
50	*ET-336997	TR ZSB808-V G.H
51	ET-336869	TR ZSC2999 C.D
52	ET-353898	TR ZSC3330 F05
53	ET-349081	TR ZSC3383 S.T
54	ET-349592	TR ZSC3400 F05
55	ET-328265	TR ZSC930 F
56	ET-347961	TR ZSD1012-V F 05
57	ET-349459	TR ZSD1406 O.Y GR
58	*EZ-358816	BATTERY LITHIUM BR2032-1HF

## 2. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1A	BA-721701J	PC TUNER BLK AT-52(U)
1B	BA-721702J	PC TUNER BLK AT-52(E,B)
1C	BA-721700J	PC TUNER BLK AT-52(IV)
1D	BA-721699J	PC TUNER BLK AT-52(LE,B)
2	BA-722674J	PC CONTROL BLK AT-52
1A	BA-721701J	PC TUNER BLK AT-52(U)
1B	BA-721702J	PC TUNER BLK AT-52(E,B)
1C	BA-721700J	PC TUNER BLK AT-52(IV)
1D	BA-721699J	PC TUNER BLK AT-52(LE,B)
2	BA-722674J	PC CONTROL BLK AT-52

### 3. TUNER P.C BOARD

Ref. No.	Part No.	Description
C801	*EC-320548	C CE V F 103Z 250AC
C813	*EC-338496	C CE V FZ 472P 400AC [B,E,V]
C814	*EC-320548	C CE V F 103Z 250AC [N]
D1	ED-336832-A	D VARACTOR SVC1211SPA A,B,C,D,E
D2	ED-336832-A	D VARACTOR SVC1211SPA A,B,C,D,E
D3	ED-336832-A	D VARACTOR SVC1211SPA A,B,C,D,E
D4	ED-336832-A	D VARACTOR SVC1211SPA A,B,C,D,E
D101	ED-344280	D SILICON H GMA-01-FY2 F05
D102	ED-344280	D SILICON H GMA-01-FY2 F05
D103	ED-344280	D SILICON H GMA-01-FY2 F05
D104	ED-344280	D SILICON H GMA-01-FY2 F05
D105	ED-344280	D SILICON H GMA-01-FY2 F05
D106	ED-344280	D SILICON H GMA-01-FY2 F05
D107	ED-344280	D SILICON H GMA-01-FY2 F05
D108	ED-301911	D SILICON H DS448
D109	ED-344280	D SILICON H GMA-01-FY2 F05
D110	ED-344280	D SILICON H GMA-01-FY2 F05
D111	ED-344280	D SILICON H GMA-01-FY2 F05
D201	ED-371782	D SILICON H 1S2186
D202	ED-353692-A	D VARACTOR SVC321SPA C,D DBL
D203	ED-353692-A	D VARACTOR SVC321SPA C,D DBL
D204	ED-344280	D SILICON H GMA-01-FY2 F05
D205	ED-344280	D SILICON H GMA-01-FY2 F05
D301	ED-301911	D SILICON H DS448
D601	ED-344280	D SILICON H GMA-01-FY2 F05
D602	ED-712927	D ZENER H GZA9.1 X
D603	ED-344280	D SILICON H GMA-01-FY2 F05
D801	ED-344280	D SILICON H GMA-01-FY2 F05
D802	ED-344280	D SILICON H GMA-01-FY2 F05
D803	*ED-3575754	D SILICON DS135D 200/1.0A
D804	*ED-345555	D SILICON DB810C 200/1.0A
D805	ED-712926	D ZENER H GZA12 X
D806	ED-721696J	D ZENER H GZA22 X
D807	ED-712928	D ZENER H GZA5.6 X
D808	*ED-716992	D ZENER H GZA15 Y

## 6. MAIN PC BOARD

b) PC Board

a) Mechanism Block

Ref. No.	Part No.	Description
IC601	EI-354951	IC LM7000N
J101	EJ-359031	TERMINAL LEVER YKD31-0215 P 2P [ANTENNA]
J301	EJ-719343	PIN J YKC21-0048A 2P [OUT PUT]
L1	EO-349461	COIL FIX 2 LINK
L2	EO-349462	COIL FIX 2 U147
L3	EO-349461	COIL FIX 2 LINK
L4	EO-349462	COIL FIX 2 U147
L5	EO-349462	COIL FIX 2 U147
L6	EO-721689J	COIL FIX 1 LF-75 2R2K
L7	EO-349446	COIL OSC 2 TFE2-OSC-U
L801	EO-338409	COIL LF FKOBI60MH02 250UH
R303	*ER-324337	R CB H S10 FS RDS 1/4W 560J
R304	*ER-324337	R CB H S10 FS RDS 1/4W 560J
R622	*ER-322787	R CB H S10 FS RDS 1/4W 100J
R624	*ER-306805	R CB H S15 FS RDS 1/2W 101J
R801	*ER-200940	R CB H S10 FS RDS 1/4W 561J
R806	*ER-324184	R CB H S10 FS RDS 1/4W 121J
R812	*ER-322421	R CB H S10 FS RDS 1/4W 820J
SW201	ES-721688J	SW TACT SKHHLQ [RESET]
SW202	ES-344439	SW SLIDE 00420451 2-04-02 [U] [DE-EMPHA/AM-STEP]
SW801	*ES-337902	SW PUSH SLD1P 01-1 [POWER]
SW901	*ES-349464	SW SLIDE 00120319 01-2 [U] [VOLTAGE SELECTOR]
TR1	ET-337743	TR FET 3SK107 E,F AKAI
TR2	ET-336869	TR 2SC2999 C,D
TR3	ET-328265	TR 2SC930 F
TR4	ET-349449	TR FET 2SK161 O,Y
TR101	ET-328265	TR 2SC930 F
TR102	ET-349449	TR FET 2SK161 O,Y
TR103	ET-328265	TR 2SC930 F
TR104	ET-353898	TR 2SC3330 F05
TR105	ET-353898	TR 2SC3330 F05
TR106	ET-353898	TR 2SC3330 F05
TR107	ET-349081	TR 2SC3383 S,T
TR108	*ET-336997	TR 2SB808-V G,H
TR109	ET-349718	TR 2SA1392 S,T
TR110	ET-349081	TR 2SC3383 S,T
TR111	ET-353898	TR 2SC3330 F05
TR112	ET-353898	TR 2SC3330 F05
TR113	ET-349081	TR 2SC3383 S,T [V]
TR114	ET-353899	TR 2SA1317 S,T,U [U]
TR201	ET-363326	TR FET 2SK161 GR
TR202	ET-349081	TR 2SC3383 S,T
TR203	ET-353898	TR 2SC3330 F05
TR204	ET-353898	TR 2SC3330 F05
TR205	ET-353898	TR 2SC3330 F05
TR301	ET-353898	TR 2SC3330 F05
TR302	ET-353898	TR 2SC3330 F05
TR303	ET-347961	TR 2SD1012-V G F05
TR304	ET-347961	TR 2SD1012-V G F05
TR601	ET-336997	TR 2SB808-V G,H
TR602	ET-353898	TR 2SC3330 F05
TR603	ET-336997	TR 2SB808-V G,H
TR604	ET-353898	TR 2SC3330 F05
TR605	ET-349081	TR 2SC3383 S,T
TR606	ET-337759	TR FET 2SK246 GR
TR607	ET-353898	TR 2SC3330 F05
TR608	ET-353898	TR 2SC3330 F05
TR609	ET-336997	TR 2SB808-V G,H
TR610	ET-336997	TR 2SB808-V G,H
TR801	ET-349081	TR 2SC3383 S,T
TR802	ET-349718	TR 2SA1392 S,T
TR803	ET-337759	TR FET 2SK246 GR
TR804	*ET-349459	TR 2SD1406 O,Y,GR
TR805	ET-353899	TR 2SA1317 S,T,U
TR806	ET-353899	TR 2SA1317 S,T,U
T1	EO-337640	COIL IFT 119AC-15533X 10.7MHZ
T101	EO-721703J	COIL 78-5016-01
T102	EO-721704J	COIL 78-5017-01
T201	EO-337598	COIL VARI 2 25A-1353-01
T202	EO-337599	COIL VARI 2 25A-1354-03
T203	EO-721691J	COIL A7NRS-9857X

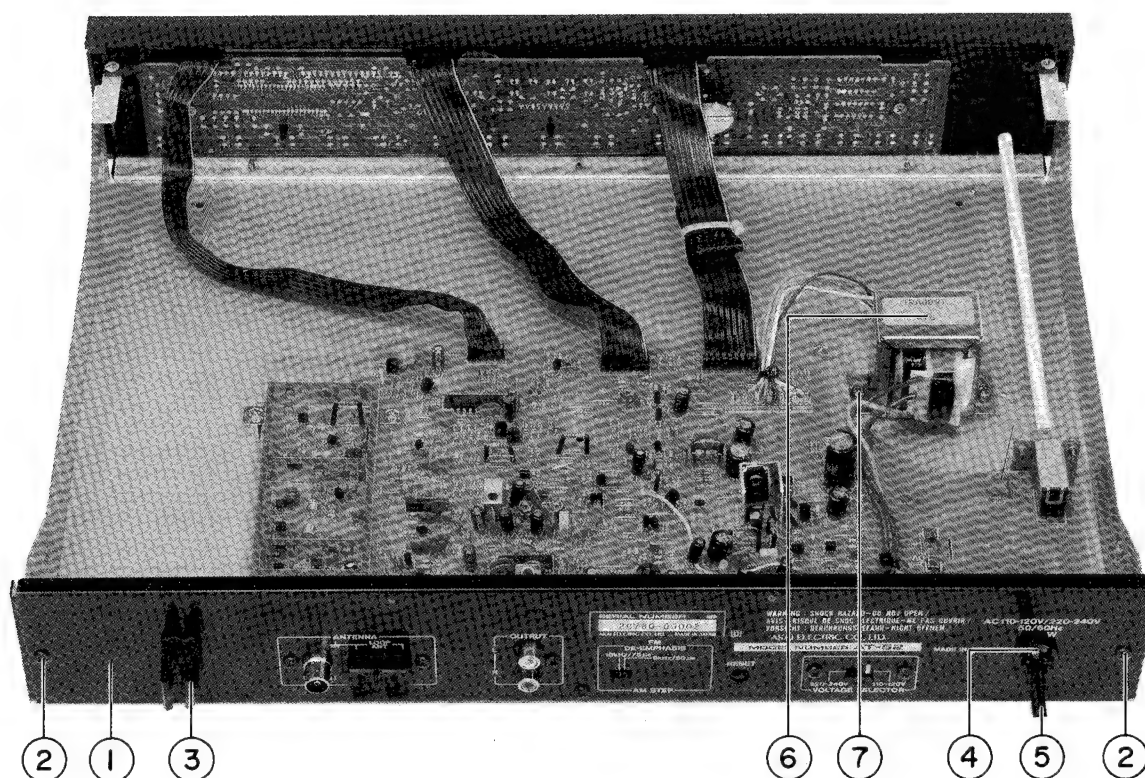
Ref. No.	Part No.	Description
T204	EO-352089	COIL OSC 2 7BRS-9098X 580.0UH
T205	EO-721692J	COIL AM 123060
VC1	EC-721690J	C TRIMER TZ03Z100FR169
VC2	EC-721690J	C TRIMER TZ03Z100FR169
VC3	EC-721690J	C TRIMER TZ03Z100FR169
VC201	EC-721707J	C TRIMER TZ03R300FR169
VC202	EC-721707J	C TRIMER TZ03R300FR169
VR101	EV-353425	R S-FIX H RVF6P01 0.10W 103
VR201	EV-353558	R S-FIX H RVF6P01 0.10W 203
VR202	EV-371224	R S-FIX H RVF6P01 0.10W 303
VR203	EV-371224	R S-FIX H RVF6P01 0.10W 303
VR301	EV-371227	R S-FIX H RVF6P01 0.10W 304
VR302	EV-371227	R S-FIX H RVF6P01 0.10W 304
X301	EI-349970	OSC CE CSB456F11 0.456MHZ
X601	EI-344422	OSC X'TAL HC-18/U 7.200MHZ
F801	*EF-359342	FUSE BET T 250V 400MA [B,E,V]
F802	*EF-359342	FUSE BET T 250V 400MA [B,E,V]
F803	*EF-359342	FUSE BET T 250V 400MA [B,E,V]
F901	*EF-308933	FUSE TSC A 250V 200MA [U]

#### 4. CONTROL P.C BOARD

Ref. No.	Part No.	Description
BT501	*EZ-358816	BATTERY LITHIUM BR2032-1HF
D501	ED-721694J	D LED MPG576X GRN
D502	ED-721694J	D LED MPG576X GRN
D503	ED-721695J	D ZENER H GZA22 X
D505	ED-721694J	D LED MPG576X GRN
D506	ED-723951J	D LED PR5524S RED
D507	ED-723951J	D LED PR5524S RED
D509	ED-721696J	D ZENER H GZA2.2 X
D510	ED-301911	D SILICON H DS448
D511	ED-301911	D SILICON H DS448
D512	ED-301911	D SILICON H DS448
D513	ED-301911	D SILICON H DS448
D514	ED-344280	D SILICON H GMA-01-FY2 F05
D515	ED-344280	D SILICON H GMA-01-FY2 F05
D516	ED-344280	D SILICON H GMA-01-FY2 F05
D517	ED-344280	D SILICON H GMA-01-FY2 F05
D518	ED-344280	D SILICON H GMA-01-FY2 F05
D519	ED-344280	D SILICON H GMA-01-FY2 F05
D520	ED-344280	D SILICON H GMA-01-FY2 F05
D521	ED-344280	D SILICON H GMA-01-FY2 F05 [U]
D522	ED-721694J	D LED MPG576X GRN
D523	ED-721694J	D LED MPG576X GRN
D524	ED-721694J	D LED MPG576X GRN
D525	ED-721694J	D LED MPG576X GRN
D526	ED-721694J	D LED MPG576X GRN
IB501	EH-355260	COMP R RGLD12X104J
IB502	EH-359120	COMP R RGLD4X104J
IC501	EI-356457	IC BU4013B
IC502	EI-356457	IC BU4013B
IC503	EI-358818	IC A3048-714 AKAI COSTOM
IC504	EI-345551	IC LB1403
SW501	ES-349367	SW TACT SKHHAK003A
SW502	ES-349367	SW TACT SKHHAK003A
SW503	ES-349367	SW TACT SKHHAK003A
SW504	ES-349367	SW TACT SKHHAK003A
SW505	ES-349367	SW TACT SKHHAK003A
SW506	ES-349367	SW TACT SKHHAK003A
SW507	ES-349367	SW TACT SKHHAK003A
SW508	ES-349367	SW TACT SKHHAK003A
SW509	ES-349367	SW TACT SKHHAK003A
SW510	ES-349367	SW TACT SKHHAK003A
SW511	ES-349367	SW TACT SKHHAK003A
SW512	ES-349367	SW TACT SKHHAK003A
SW513	ES-349367	SW TACT SKHHAK003A
SW514	ES-349367	SW TACT SKHHAK003A

Ref. No.	Part No.	Description
SW515	ES-349367	SW TACT SKHHAK003A
SW516	ES-349367	SW TACT SKHHAK003A
TN501	EM-353670	IND FL 8-BT-29ZK CHARACTER
TR501	ET-353898	TR 2SC3330 F05
TR502	ET-349592	TR 2SC3400 F05
TR503	ET-353898	TR 2SC3330 F05
TR504	ET-349592	TR 2SC3400 F05
TR505	ET-353898	TR 2SC3330 F05
TR506	ET-353898	TR 2SC3330 F05
TR507	ET-349718	TR 2SA1392 S,T
TR508	ET-353898	TR 2SC3330 F05
TR509	ET-349718	TR 2SA1392 S,T
		[U]
X501	EI-348409	OSC CE CSB400P 0.400000MHZ

## ASSEMBLY BLOCK



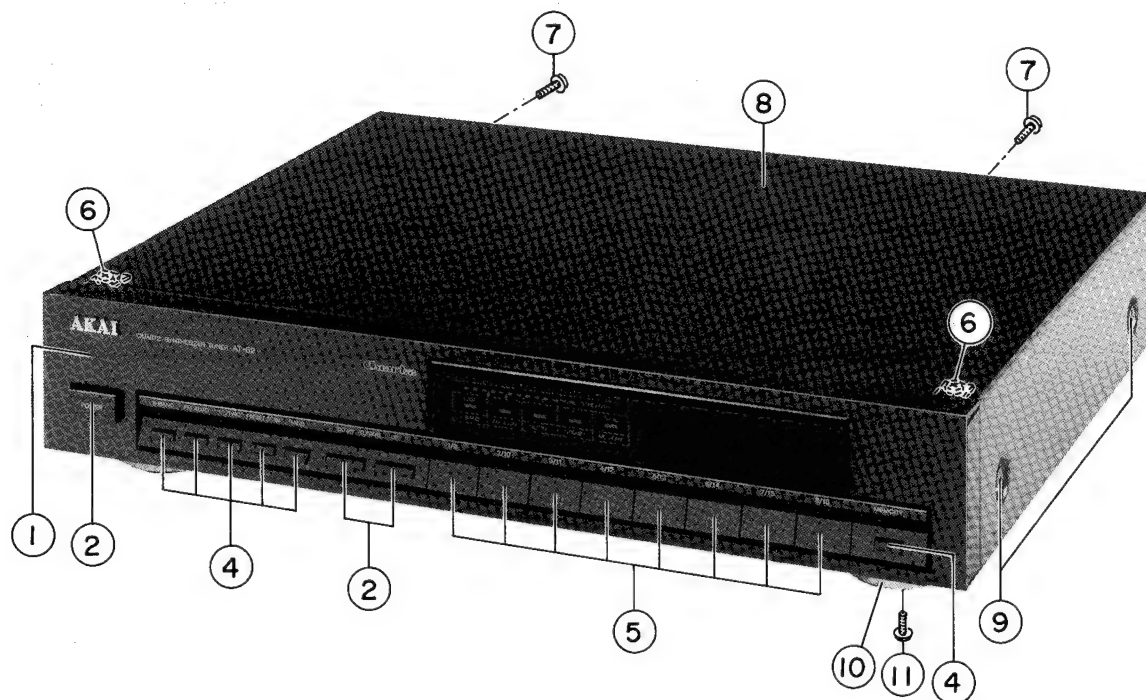
## 5. ASSEMBLY BLOCK

Ref. No.	Part No.	Description
1A	SP-721712J	PANEL REAR AT-52 (U)
1B	SP-721257	PANEL REAR AT-52(E,V)
1C	SP-721244	PANEL REAR AT-52L (B)
1D	SP-721256	PANEL REAR AT-52L (E)
2	ZS-308846	T2BR30X08STL BZN PROJECTION
3	SZ-362273	HOLDER ANTENNA (2)
4A	*EZ-345815	STOPPER CORD CM-22A
4B	*EZ-345816	STOPPER CORD CM-22B
4C	*EZ-357913	STOPPER CORD CM-22C

Ref. No.	Part No.	Description
5A	*EW-359448	AC CORD 2C KP700A,VFF-CB U/T
5C	*EW-355033	AC CORD 2 CORES KP-419C, LTCE-
5E	*EW-355034	AC CORD 2 CORES LTBS-2F-CB B
6A	*BT-721687J	TRANS POWER AT-52 (U)
6B	*BT-721684J	TRANS POWER AT-52/L(E,V)
6C	*BT-721685J	TRANS POWER AT-52/L (B)
7	ZS-315511	ST PAN30X06STL CMT CUP

## PARTS LIST

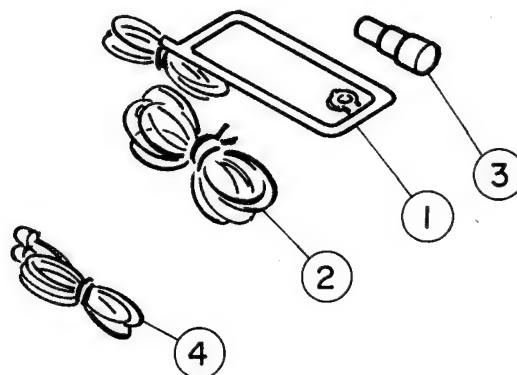
## FINAL ASSEMBLY BLOCK



## 6. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
1A-G	BD-721253	PANEL FRONT BLK AT-52-G
1A-B	BD-721252	PANEL FRONT BLK AT-52-B
1B-B	BD-721716J	PANEL FRONT BLK AT-52L-B
2-G	SK-373236A	KNOB POWER-G
2-B	SK-373236B	KNOB POWER-B
3-G	SK-721250	KNOB TUNING-G
3-B	SK-721249	KNOB TUNING-B
4-G	SK-368675A	KNOB BAND G
4-B	SK-368675B	KNOB BAND B
5-G	SK-721262	KNOB PUSH-G
5-B	SK-721261	KNOB PUSH-B
6	ZS-447840	T2BR30X08STL CMT
7	ZS-463353	T2BR30X08STL BNI
8-G	SP-368689A	COVER UPPER-G
8-B	SP-368689B	COVER UPPER-B
9-G	ZS-341959	ST BID40X06STL NI3
9-B	ZS-341960	ST BID40X06STL BNI
10	SA-379375	FOOT(N)
11	ZS-331567	T2BR30X08STL CMT C080

## ACCESSORY



## 7. ACCESSORY

Ref. No.	Part No.	Description
1	EE-359265	ANT LOOP LA-200A-A
2	EE-315329	ANT DIPOLE SAE-010
3	EJ-352118	SOCKET COAX PAL B2-714P-900
4	EW-344151	CORD RR-61A PINX2-PINX2



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Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
BA-721699J	1D	ED-712928	19	EO-349462	L2	ET-349718	TR509
BA-721700J	1C	ED-712928	D807	EO-349462	L4	ET-353898	52
BA-721701J	1A	ED-715992	14	EO-349462	L5	ET-353898	TR104
BA-721702J	1B	ED-715992	D808	EO-352089	T204	ET-353898	TR105
BA-722674J	2	ED-715992	D810	EO-721689J	L6	ET-353898	TR106
BD-721252	1A-B	ED-721694J	4	EO-721691J	T203	ET-353898	TR111
BD-721253	1A-G	ED-721694J	D501	EO-721692J	T205	ET-353898	TR112
BD-721716J	1B-B	ED-721694J	D502	EO-721703J	T101	ET-353898	TR203
BT-721684J	3	ED-721694J	D505	EO-721704J	T102	ET-353898	TR204
BT-721684J	6B	ED-721694J	D522	ER-200940	R801	ET-353898	TR205
BT-721685J	2	ED-721694J	D523	ER-306805	R624	ET-353898	TR301
BT-721685J	6C	ED-721694J	D524	ER-322421	R812	ET-353898	TR302
BT-721687J	1	ED-721694J	D525	ER-322787	R622	ET-353898	TR602
BT-721687J	6A	ED-721694J	D526	ER-324184	R806	ET-353898	TR604
EC-320548	C801	ED-721695J	16	ER-324337	R303	ET-353898	TR607
EC-320548	C814	ED-721695J	D806	ER-324337	R304	ET-353898	TR608
EC-338496	C813	ED-721695J	D503	ES-337902	39	ET-353898	TR501
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ED-301911	D301	EF-308933	22	ES-349367	SW504	ET-353899	TR806
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ED-301911	D513	EF-359342	F802	ES-349367	SW508	EV-353558	TR201
ED-336832-A	11	EF-359342	F803	ES-349367	SW509	EV-371224	VR202
ED-336832-A	D1	EH-315407	24	ES-349367	SW510	EV-371224	VR203
ED-336832-A	D2	EH-315407	FL101	ES-349367	SW511	EV-371227	VR301
ED-336832-A	D3	EH-315407	FL102	ES-349367	SW512	EV-371227	VR302
ED-336832-A	D4	EH-315407	FL103	ES-349367	SW513	EW-344151	4
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ED-344280	D107	EH-721705J	26	ET-328265	55	EZ-358816	BT501
ED-344280	D109	EH-721705J	FL301	ET-328265	TR3	SA-379375	10
ED-344280	D110	EH-721705J	FL302	ET-328265	TR101	SK-368675A	4-G
ED-344280	D111	EH-721706J	27	ET-328265	TR103	SK-368675B	4-B
ED-344280	D204	EH-721706J	FL105	ET-336869	51	SK-373236A	2-G
ED-344280	D205	EL-337964	29	ET-336869	TR2	SK-373236B	2-B
ED-344280	D601	EL-337964	IC101	ET-336997	50	SK-721249	3-B
ED-344280	D603	EL-337964	IC102	ET-336997	TR108	SK-721250	3-G
ED-344280	D801	EL-344422	37	ET-336997	TR601	SK-721261	5-B
ED-344280	D802	EL-344422	X601	ET-336997	TR603	SK-721262	5-G
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ED-344280	D813	EL-345551	IC504	ET-336997	TR610	SP-368689B	8-B
ED-344280	D814	EL-348409	35	ET-337743	47	SP-721244	1C
ED-344280	D815	EL-348409	X501	ET-337743	TR1	SP-721256	1D
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ED-712926	D805	EO-349446	L7	ET-349718	TR109		
ED-712927	20	EO-349461	L1	ET-349718	TR802		
ED-712927	D602	EO-349461	L3	ET-349718	TR507		

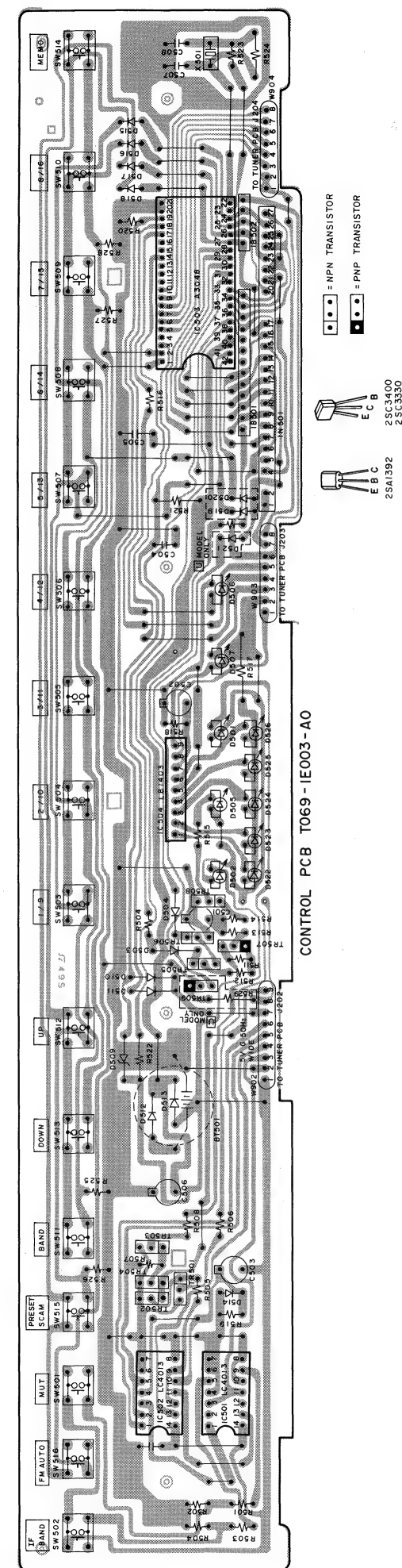
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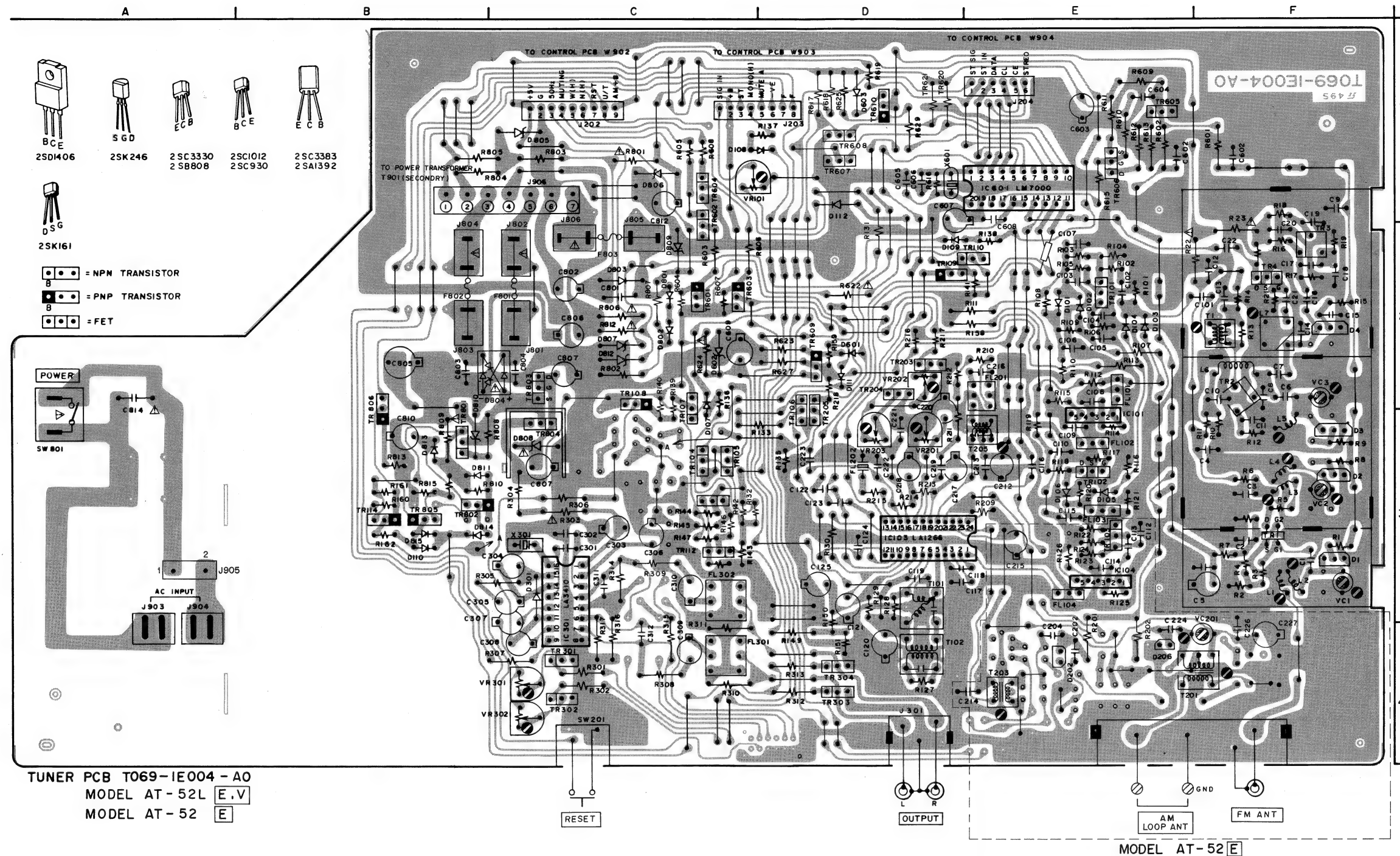
## MODEL AT-52/L

### SCHEMATIC DIAGRAM AND PC BOARDS

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IC102.....E3

IC103.....D3

IC301.....C4

IC601.....E1

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TR102,103...E3

TR104,105...C3

TR106.....D2

TR107,108...C3

TR109.....D2

TR110.....E2

TR111,112...C3

TR114.....B3

TR201,202...E4

TR302.....C4

TR303,304...D4

TR602.....C2

TR603.....C2

TR604.....C1

TR605.....E1

TR606.....E1

TR607,608...D1

TR610.....D1

TR801.....B3

TR802.....B3

TR803.....C2

TR804.....C2

TR805.....B3

TR806.....B3

#### TERMINALS

J202.....C1

J203.....C1

J204.....E1

#### ADJUSTMENT POINTS

L1.....FM LOW

L2.....FM HIGH

L4.....FM LOW

L5.....FM LOW

L7.....FM LOW

VC1.....FM HIGH

VC2.....FM HIGH

VC3.....FM HIGH

VC201...MW HIGH

VC202...LW HIGH

T1.....FM LOW

T5.....AM IF

T202...LW LOW

T203...MW OSC

T204...MW OSC

VR202...FM MUTING

NARROW

VR203...FM MUTING

WIDE

VR301...MPX NARROW

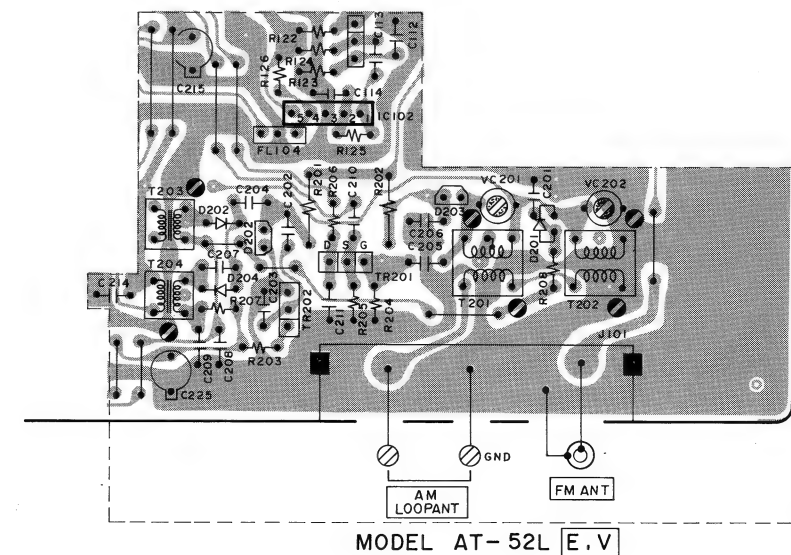
VR302...MPX WIDE

VR101...FM SIGNAL

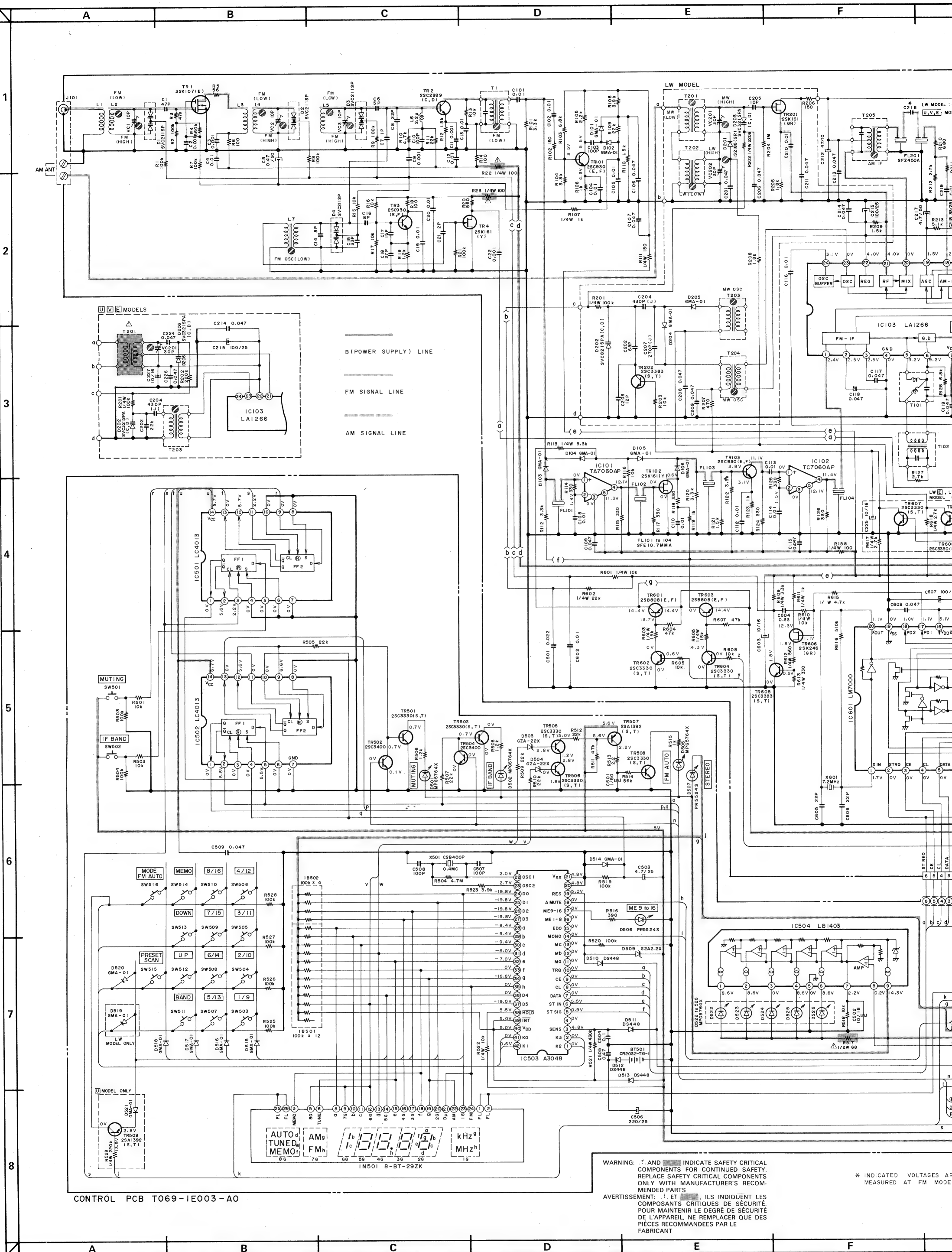
INDICATOR

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.





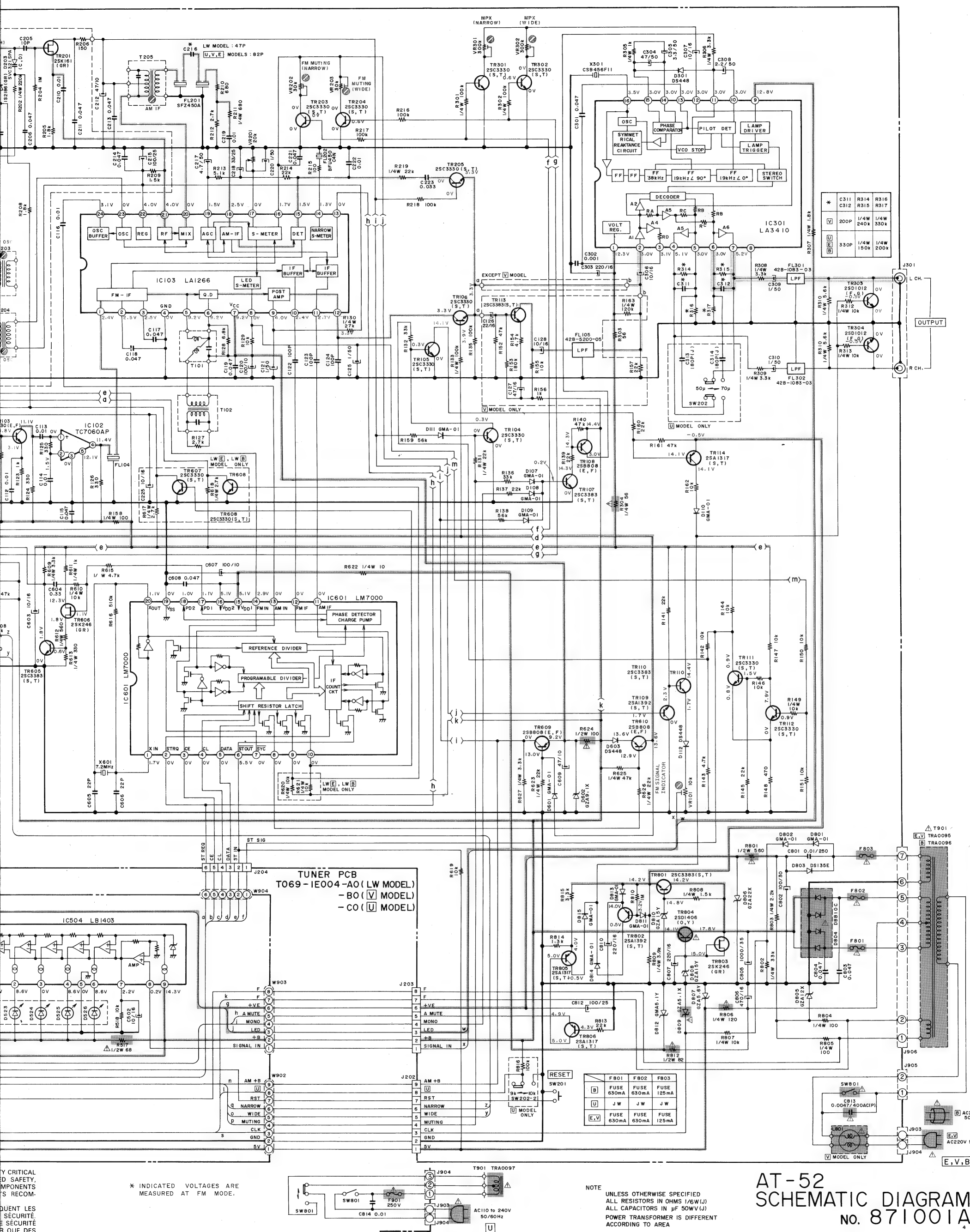


CONTROL PCB T069-1E003-A0

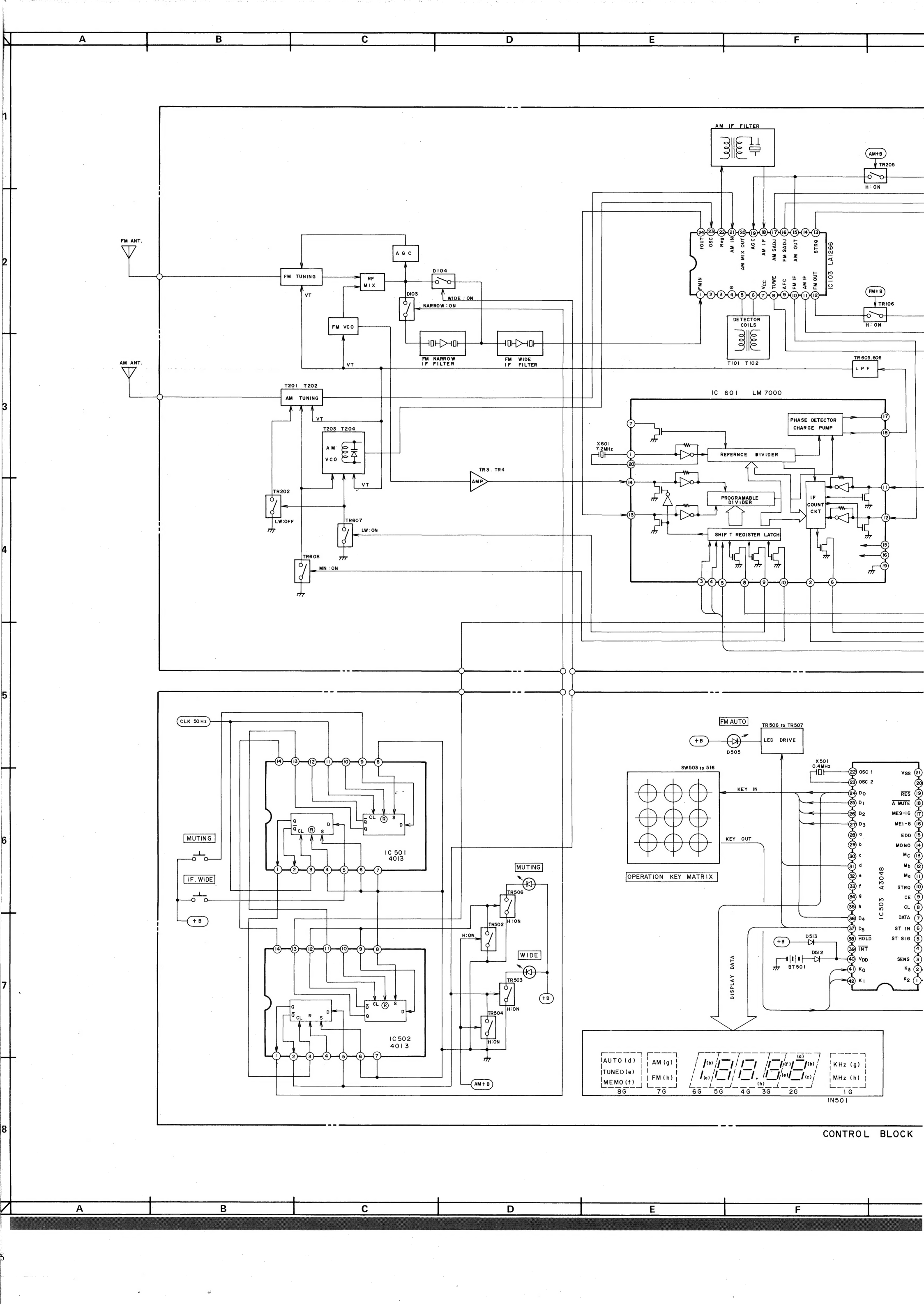
WARNING: † AND ■ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: † ET ■ ILS INDIQUENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

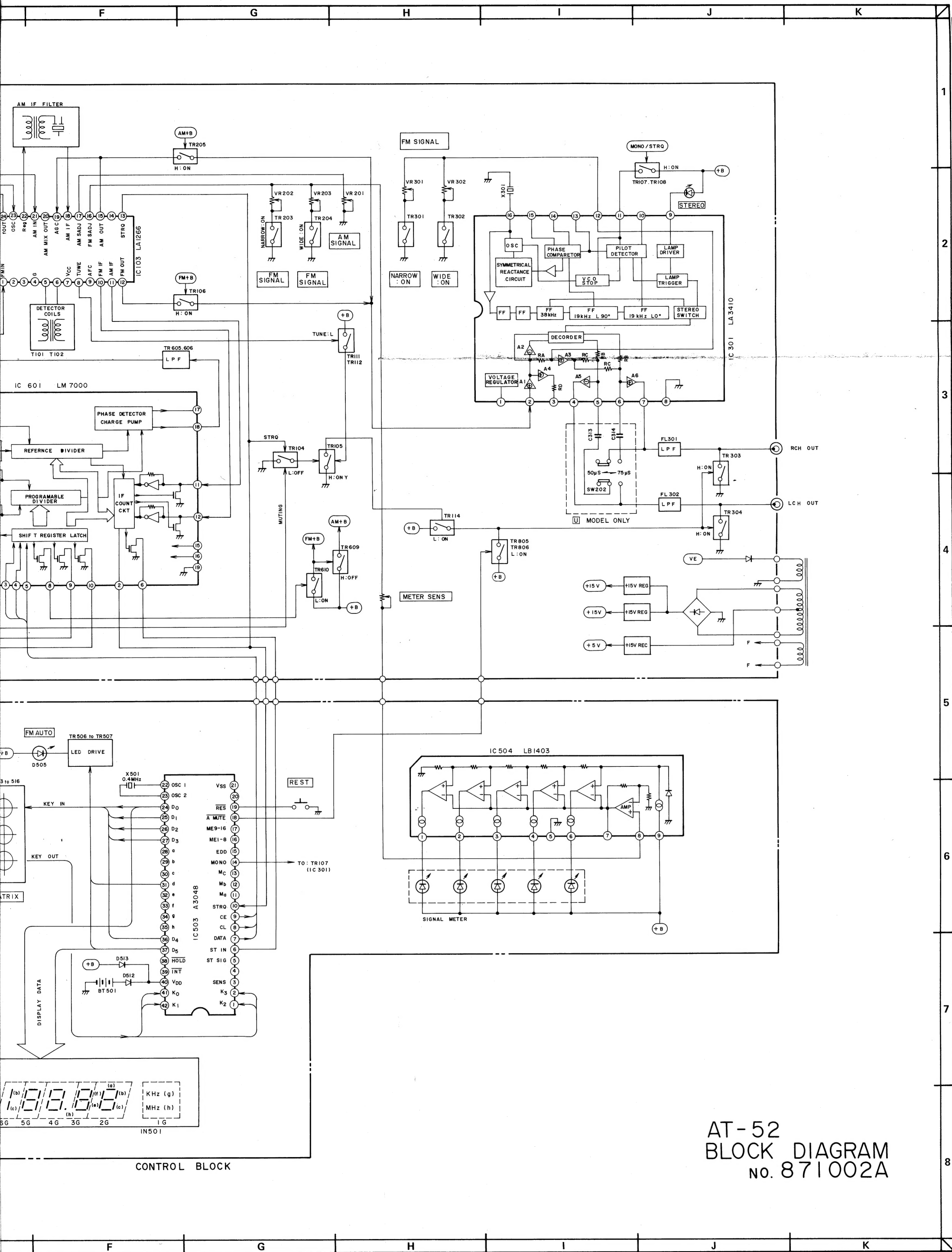
\* INDICATED VOLTAGES ARE MEASURED AT FM MODE.

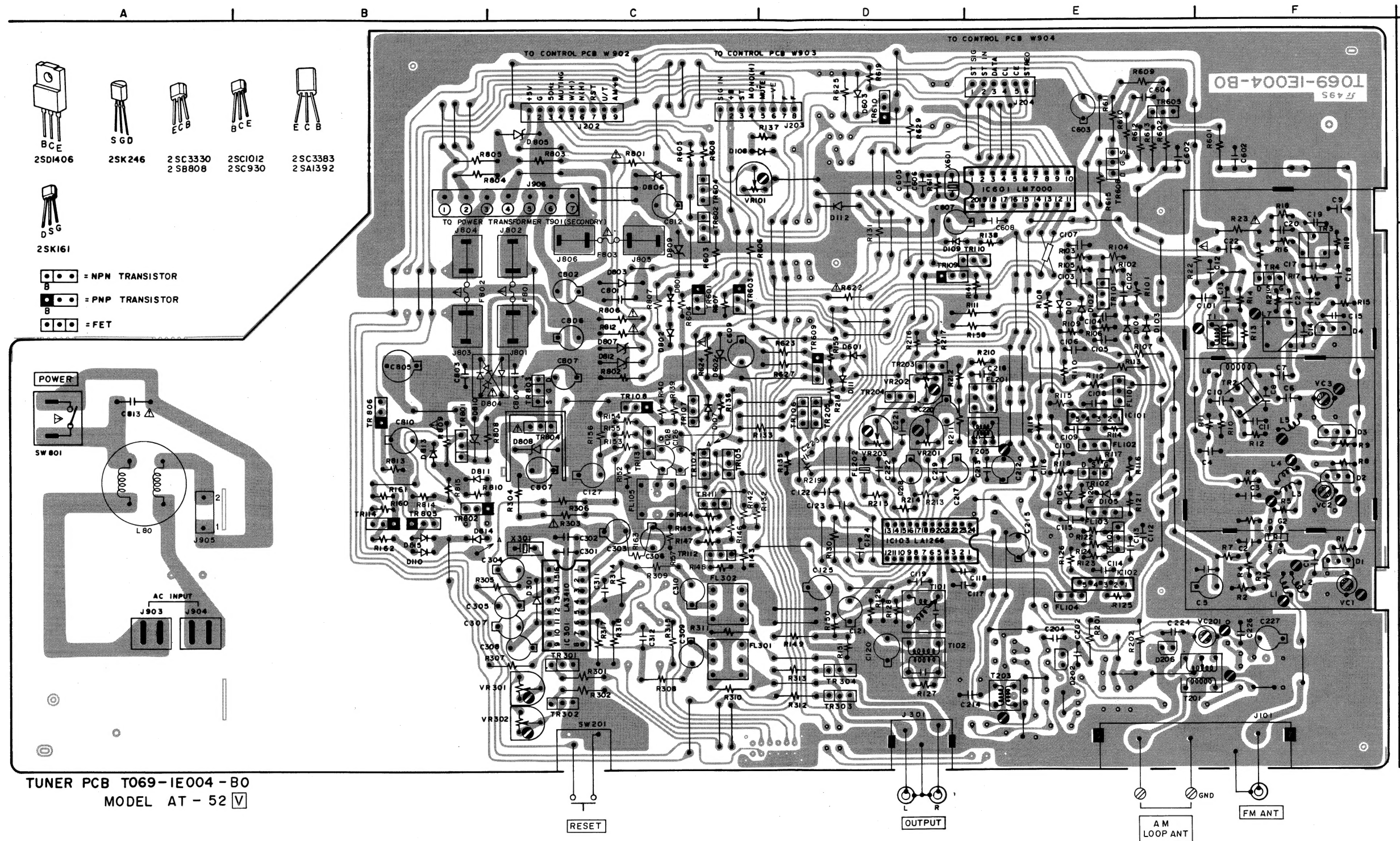


AT-52  
SCHEMATIC DIAGRAM  
No. 871001A

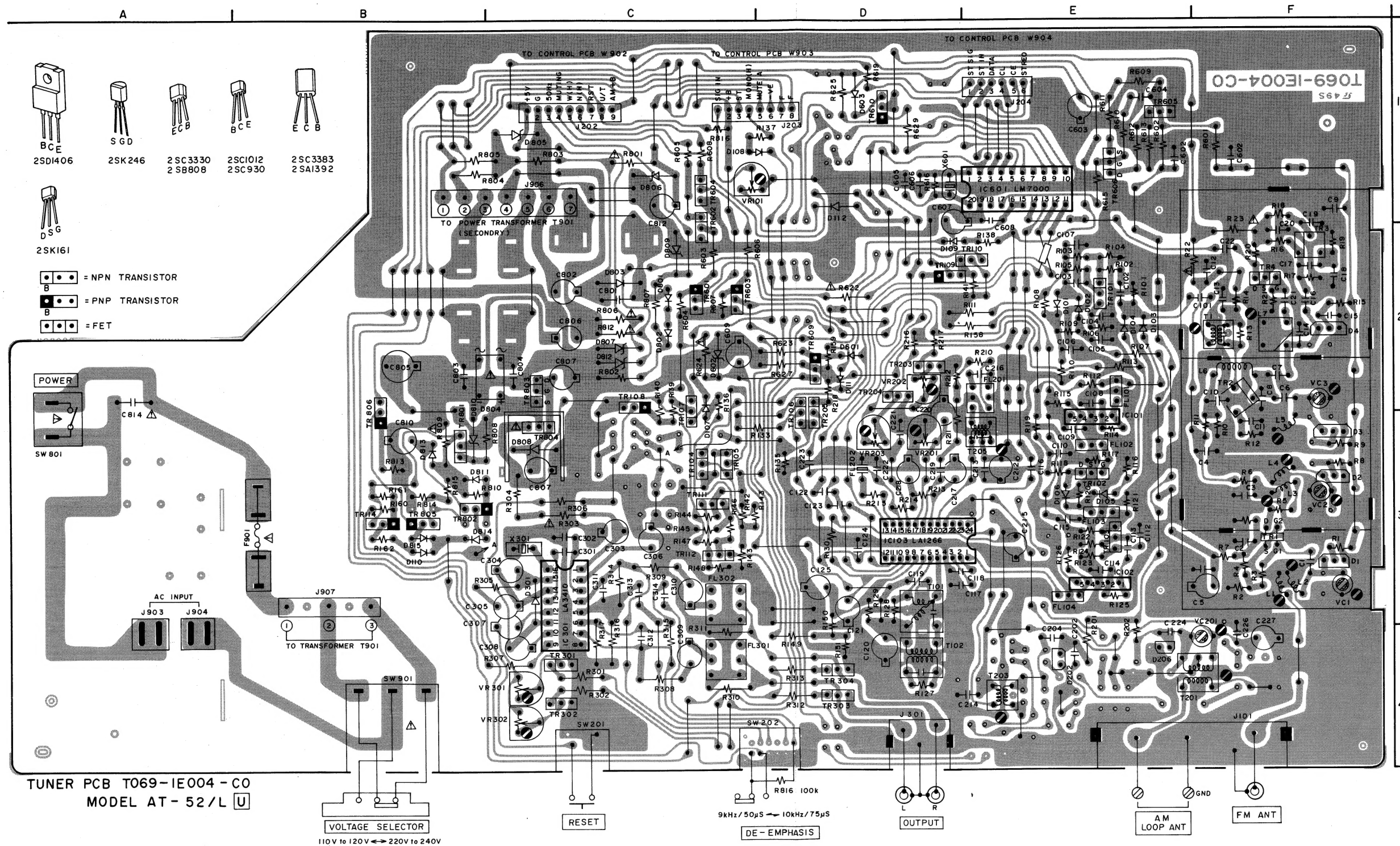












WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

#### LOCATION OF COMPONENTS

IC's  
IC101.....E3  
IC102.....E3  
IC103.....D3  
IC301.....C4  
IC601.....E1

#### TRANSISTORS

TR101.....E2  
TR102,103...E3  
TR104,105...C3  
TR106.....D2  
TR107,108...C3  
TR109.....D2  
TR110.....E2  
TR111,112...C3  
TR114.....B3  
TR302.....C4  
TR303,304...D4  
TR602.....C2  
TR603.....C2  
TR604.....C1  
TR605.....E1  
TR606.....E1  
TR610.....D1  
TR801.....B3  
TR802.....B3  
TR803.....C2  
TR804.....C2  
TR805.....B3  
TR806.....B3

#### TERMINALS

J202.....C1  
J203.....C1  
J204.....E1